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Brain Function Enhancing Medicine and its Manufacturing Procedure

[57] Abstract:

Brain function enhancing medicine, which can be used to treat enuresis, feeblemindedness, cretinism and other diseases caused by a weak brain function, is the extracted substance from xanthoceras sorbifolia seeds. The defatted powder of xanthoceras sorbifolia kernels contains crude fat, crude protein composing of 17 varieties of amino acid (glutamic acid, lysine, arginine and tyrosine etc.), saponin, water, sugar and trace elements. The content of constituents is as follows:

Crude fat	Crude protein	Saponin	Water	Others
1~10	55~65	2~4	7~20	the rest

The brain function enhancing medicine can remarkably enhance the function of the cerebral nerve system, and its effectiveness on infant feeblemindedness, mid and old-aged cretinism and other diseases is significant.

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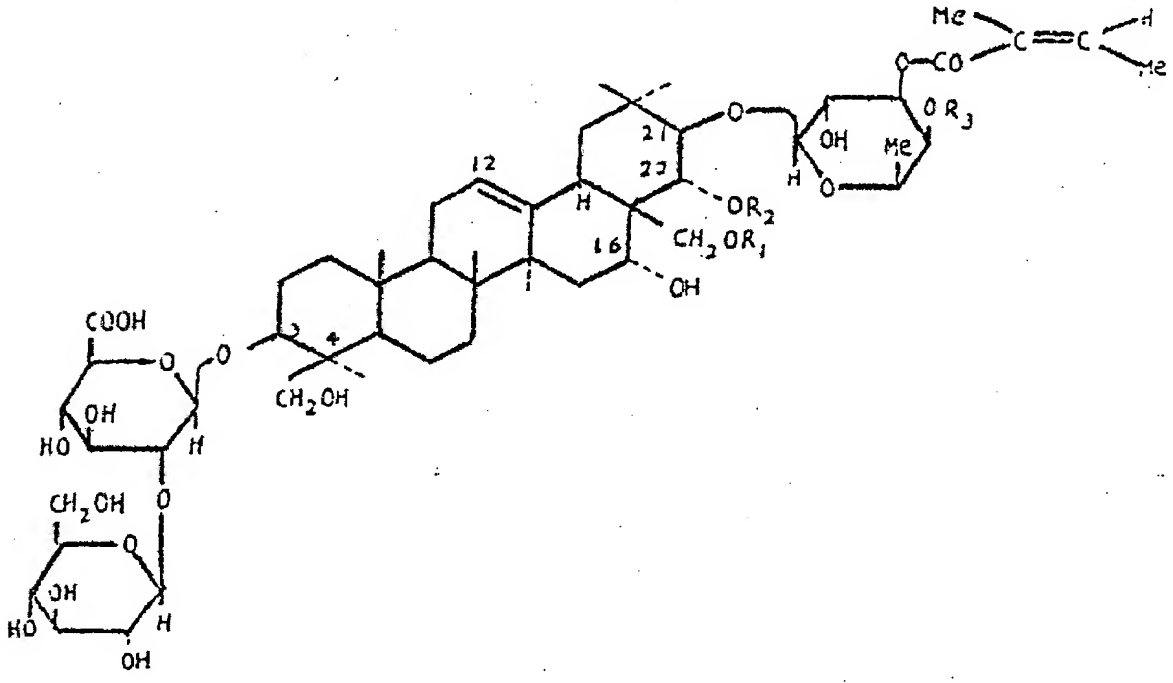
Claims

1. This invention is a brain function enhancing medicine, which can be used to treat enuresis, feeblemindedness and cretinism, and is the extracted substance from xanthoceras sorbifolia seeds.
2. The brain function enhancing medicine mentioned in the claim (1) is the defatted powder of xanthoceras sorbifolia kernels, which contains crude fat, crude protein composing of 17 varieties of amino acid (glutamic acid, lysine, arginine and tyrosine etc.), saponin, water, sugar and trace elements, and it has a saponin structure like this:



The content of constituents is as follows:

Crude fat	Crude protein	Saponin	Water	Others
1~10	55~65	2~4	7~20	the rest

3. The procedure of manufacturing the brain function enhancing medicine mentioned in the claim (2) is as follows:
   —— Press the kernels into cakes and powder;
   —— Extract and defat;
   —— The defatted powder is obtained through drying, milling, sieving and sterilization.
4. The procedure of manufacturing the brain function enhancing medicine mentioned in the claim (3) is to extract and defat in the following ways:

—— Extract with lowpole organic solvents such as ligarine, benzene, n-hexane under ambient temperature or heated temperature below 90°;

—— Collect extracted liquid and obtain defatted coarse powder by removing the solvent.

5. The procedure of manufacturing the brain function enhancing medicine as mentioned in the claim (3) has the characteristic of being extracted and defatted by CO_2 super critical extraction.

6. The brain function enhancing medicine as mentioned in the claim (2) has the characteristic that the defatted powder can be made into the form of capsules for treating enuresis.

7. The brain function enhancing medicine as mentioned in the claim (2) has the characteristic that the defatted powder can be made into the form of granules for treating enuresis.

Description

Brain Function Enhancing Medicine and its Manufacturing Procedure

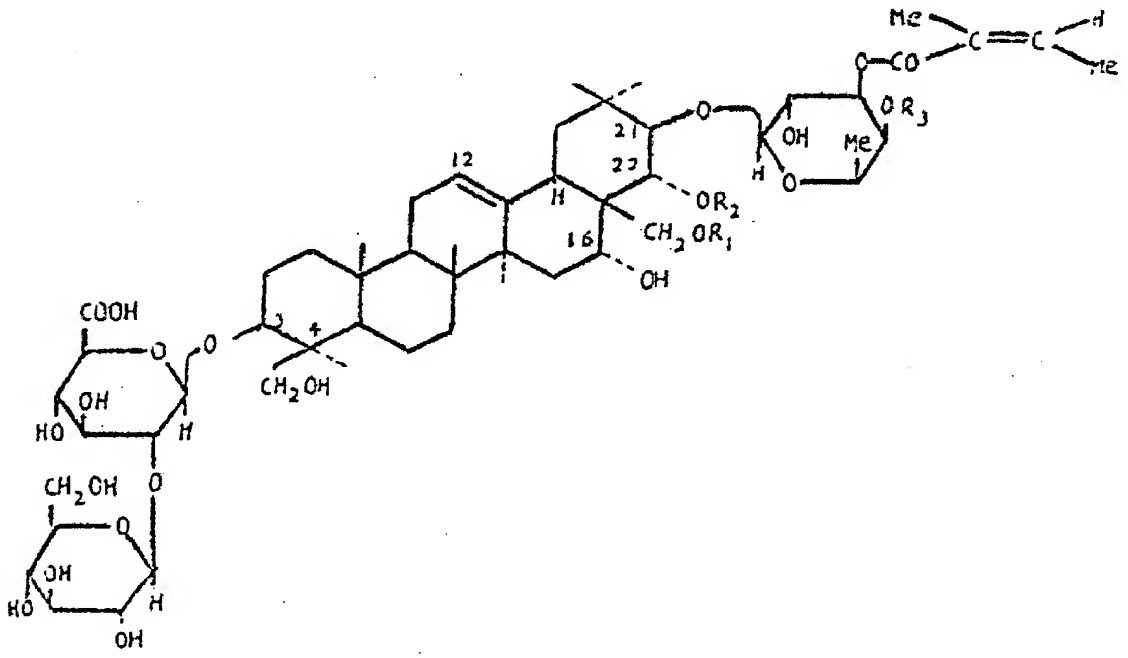
This invention relates to Chinese herbal medicine, particularly a brain function enhancing medicine made of extracted substance from xanthoceras sorbifolia seeds.

Xanthoceras sorbifolia bunge is a plant belonging to the sapindaceae, a type of defoliate bush or arbor tree, and its other name is called Ya Mu Gua (Cliff Pawpaw). It has an odd-number of compound leaves with feather looking, raceme with white flowers. It produces three segmented capsules with multiple seeds. The sub-chemical composition analysis of xanthoceras sorbifolia seeds indicates that it contains approximately 60% of oil fat, 26% of protein, about 1.2% of crude saponin, 2.4% of water and 4.9% of other elements. Xanthoceras sorbifolia bunge had remained a wild plant until not long ago when some cultivation in North China started. It is very adaptive and can endure cold, dry climate and poor soil conditions. The usage of xanthoceras sorbifolia bunge has been mainly confined to two aspects: one is to grow it for stopping wind and consolidating desert sand, and the other is to use its seeds for food oil extraction. After searching the literature inside and outside China, it has been established that there is no record of medical use of xanthoceras sorbifolia in *China pharmacopeia* and herb medicine collections in the history.

The purpose of this invention is to provide a brain function enhancing medicine.

The brain function enhancing medicine proposed by this invention can be used to treat enuresis, feeblemindedness and cretinism and other diseases caused by weak brain function, and it is the extracted substance from xanthoceras sorbifolia seeds.

One of the products is the defatted powder of xanthoceras sorbifolia kernels, which contains crude fat, crude protein composing of 17 varieties of amino acid (glutamic acid, lysine, arginine and tyrosine etc.), saponin, water, sugar, trace elements, and its saponin structure is like the following:



The content of constituents is as follows:

Crude fat	Crude protein	Saponin	Water	Others
1~10	55~65	2~4	7~20	the rest

The manufacturing procedure:

—— Press the kernels into cakes and powder;

—— Extract and defat;

—— Obtain defatted powder through drying, milling, sieving and sterilization.

The extraction and defat can be done in the following ways:

—— Extract with lowpole organic solvents such as ligarine, benzene, n-hexane under ambient temperature or heated temperature below 90°;

—— Collect extracted liquid and obtain defatted coarse powder by removing the solvent.

Or the extraction and defat can be carried out by CO_2 super critical extraction method.

The defatted powder of xanthoceras sorbifolia kernels can be made into the form of capsules or granules for treating enuresis.

The effectiveness of xanthoceras sorbifolia seeds and the enuresis prevention capsules and granules on enuresis is very remarkable, with recovery rate of 75% and improvement rate of 18%. The total effectiveness of 93% shows that it is currently one of the most desirable medicines of the kind. Meanwhile, the enuresis prevention capsules or granules can also be used to treat feeblemindedness and cretinism.

This invention also provides a brain function enhancing medicine, which can be used to treat feeblemindedness, cretinism and enuresis as well. It is the alcohol extracted substance from xanthoceras sorbifolia seeds. The content of the substance is as follows:

Crude fat	Crude protein	Saponin	Sugar	Water	Others
1~10	15~20	10~20	20~30	10~15	the rest

The manufacturing procedure is as follows:

—— Pressed xanthoceras sorbifolia seeds or defatted powder of xanthoceras sorbifolia kernels are soaked/extracted with alcohol solvents such as ethanol, methanol, n-butyl alcohol etc

—— Collect extracted liquid and remove the solvent. The alcohol extractum is obtained after sterilization. The extractum can be made into the form of granules or tablets. The brain function enhancing medicine can remarkably enhance the function of cerebral nerve system, and its effectiveness on infant feeblemindedness, mid and old-aged cretinism is significant. This invention is the production of medicine using xanthoceras sorbifolia seeds as the source of extraction. Various pharmacological tests indicate that there are no toxicity and side effects. The manufacturing process of defatted powder of xanthoceras sorbifolia kernels is simple, with a high saponin recovery rate at low costs. The xanthoceras sorbifolia kernel contains 60% of fat and 17 varieties of amino acid. The removed fat can be used as food oil and high quality paint. The following implementing examples are provided in detail to act as illustrations of this invention.

Implementing Example 1

Harvest and collect 1kg of xanthoceras sorbifolia seeds. Have the seeds washed, selected and dried. Remove shells to get 440g of kernels. Press the kernels into cakes and powder. Carry out extractions 4-5 times under ambient temperature with the n-hexane solvent to the pressed kernel material in the ratio of 1:1 lasting 24-48 hours each time. Collect the extracted liquid and remove solvent through the reduced pressure distillation process. Obtain defatted powder of 176g through drying, milling, sieving and sterilization. The powder contains the following:

Crude fat	Crude protein	Saponin	Water	Others
5.4	61	3.3	7.5	22.8

Implementing Example 2

Take 76g of the defatted powder made in example (1), and add the proper amount of ethanol to make into soft material. Have it granulated, sieved and dries. Then fill into 380 capsules of #2 size. This capsule is called the enuresis prevention medicine for treating enuresis.

Implementing Example 3

Take 100g of the defatted powder made in example (1) and add saccharose to mix it up. Granulate, dry and sterilize. Place into fifty 10g sachets. These sachets of granules are the enuresis prevention medicine for treating enuresis.

Implementing Example 4

Harvest and collect 1kg of xanthoceras sorbifolia seeds. Follow the procedure mentioned in example (1) to obtain 170g of defatted powder in which the content is as follows:

Crude fat	Crude protein	Saponin	Water	Others
6.2	59	3.5	8.2	23.1

Implementing Example 5

Take the defatted powder produced in example (4). Carry out extractions 3-4 times with ethanol solvent to the defatted powder in the ratio of 2:1, lasting 16-32 hours each time. Collect the extracted liquid and remove the solvent. Obtain 25.5g of the ethanol extracted substance after sterilization, which contain the following:

Crude fat	Crude protein	Saponin	Sugar	Water	Others
8.0	15.6	19.2	23.5	14.1	19.6

Implementing Example 6

Harvest and collect 1kg of xanthoceras sorbifolia seeds, which have the same quality as that mentioned in example 4. Have the seeds washed, selected and dried. Press the kernels to remove oil and obtain 750g of cakes. Carry out extractions 3-4 times with methanol two times the amount of the cakes, lasting 20-48 hours each time. Collect the extracted liquid and remove the solvent. Obtain 80g of methanol extracted substance after sterilization, which is composed of the following:

Crude fat	Crude protein	Saponin	Sugar	Water	Others
6.1	17.1	12.3	20.5	12.6	31.4

Implementing Example 7

Take 10g of the ethanol extracted substance obtained in example (5) and add 0.2g of dry starch, 0.06g of ethanol with 50% concentration, and 0.1g of talcum powder. Mix them up, press into tablets, and then sterilize to obtain sixty 200mg tablets. These tablets can be used to treat enuresis, feeblemindedness and cretinism.

Implementing Example 8

Take 10g of the methanol extracted substance obtained in example (6) and add 32g of saccharose powder. Mix up the substances and make granules. Dry and sterilize. Place the granules into four 10g sachets. These sachets of granules can be used to treat enuresis, feeblemindedness and cretinism.

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[54]发明名称 提高脑功能的药物及其制备方法

[57]摘要

提高脑功能的药物，可以治疗遗尿症、智力低下和痴呆症等由于脑功能低下所引起的病症，其特征在于所述药物为文冠果子的提取物。文冠果种仁的脱脂粉，含有粗脂肪，由 17 种氨基酸（如谷氨酸、赖氨酸、精氨酸、酪氨酸等）组成的粗蛋白、皂甙、水、醣、微量元素，具体含量为：

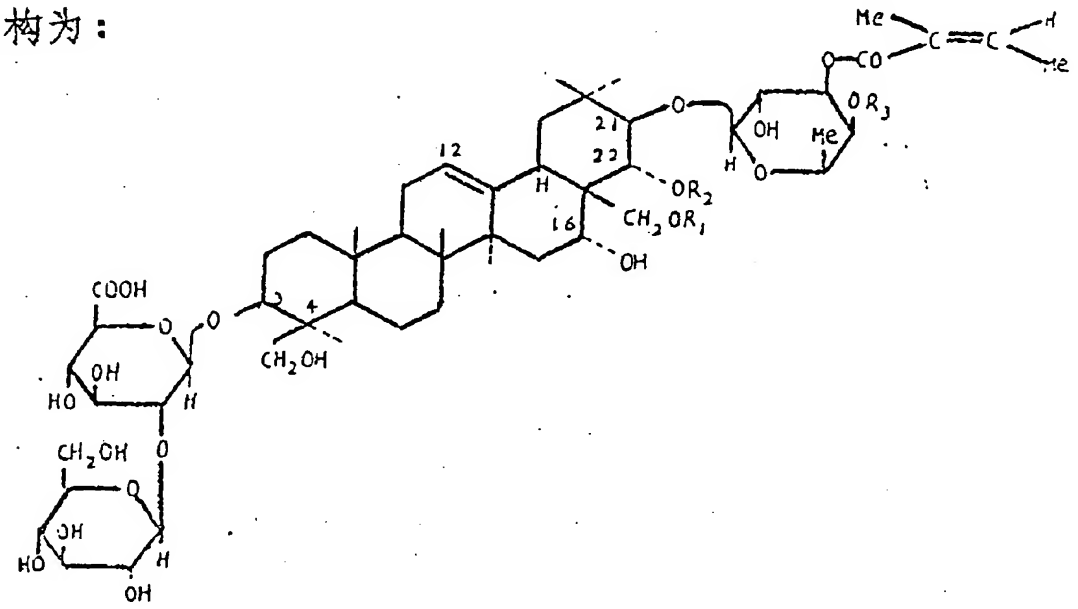
粗脂肪	粗蛋白	皂甙	水	其他
1～10	55～65	2～4	7～20	余

提高脑功能药物可全面提高脑神经系统功能，对小儿智力低下和中老年性痴呆等病症具有明显疗效。

权　利　要　求　书

1. 一种提高脑功能的药物，可以治疗遗尿症、智力低下和痴呆症，其特征在于所述药物为文冠果子的提取物。

2. 按权利要求 1 所述提高脑功能药物，其特征是：所述药物为文冠果种仁的脱脂粉，含有粗脂肪，由 17 种氨基酸（如谷氨酸、赖氨酸、精氨酸、酪氨酸等）组成的粗蛋白质、皂甙、水、酶、微量元素，皂甙结构为：



具体含量为：

粗脂肪	粗蛋白	皂甙	水	其他
1～10	55～65	2～4	7～10	余

3. 一种生产权利要求 2 所述提高脑功能药物的方法，其特征是，生产依下述步骤：

——预榨种仁饼粉；

——萃取脱脂；

——干燥，粉碎，过筛，灭菌得脱脂粉。

4. 按权利要求 3 所述生产提高脑功能药物的方法，其特征是，萃取脱脂采用下述方式：

——用弱极性有机溶剂如石油醚、苯、正已烷等于室温下或加热〈90° 情况下，萃取；

——收集萃取液，除去溶剂得脱脂粗粉。

5. 按权利要求 3 所述生产提高脑功能药物的方法，其特征是，萃取脱脂采用超临界 CO_2 萃取。

6. 按权利要求 2 所述提高脑功能药物，其特征在于可将脱脂粉制成胶囊用于治疗遗尿症。

7. 按权利要求 2 所述提高脑功能药物，其特征在于可将脱脂粉制成颗粒剂，用于治疗遗尿症。

说　　明　　书

提高脑功能的药物及其制备方法

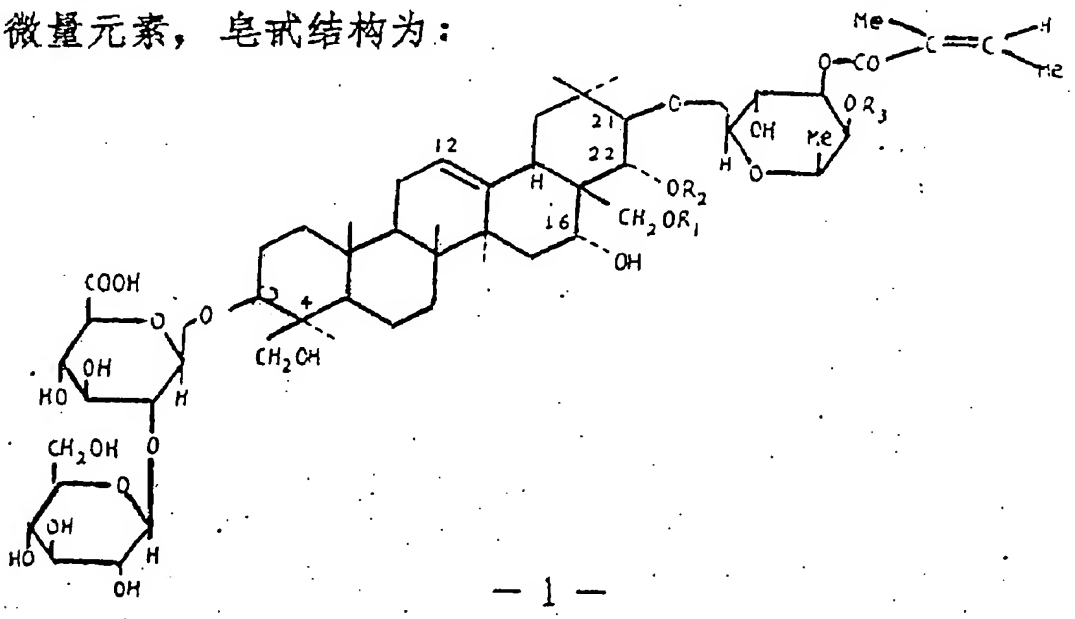
本发明涉及中药，特别是一种以文冠果子提取物制得的提高脑功能的药物。

文冠果系无患子科文冠果属植物，又名崖木瓜，属落叶灌木或小乔木、奇数羽状复叶、总状花序、花白色、蒴果三瓣型，种子多数，经过对文冠果的子化学成份分析表明，它含有约６０％的油脂，约２６％的蛋白质，约１．２％的粗皂甙，２．４％的水份及４．９％的其它成份，过去为野生植物，近来北方部分地区有栽培，其适应性强，耐寒、耐旱、耐贫瘠，一般对文冠果的利用多为两方面，其一是防风固沙，其二是用其种子榨取食用油，经查阅国内外有关文献，发现《中国药典》和历代药用本草中对文冠果均无药用记载。

本发明的目的在于提供一种提高脑功能的药物。

本发明所提供的提高脑功能的药物，可以治疗遗尿症、智力低下和痴呆症等由于脑功能低下所引起的病症，其特征在于所述药物为文冠果子的提取物。

其中之一为文冠果种仁的脱脂粉，含有粗脂肪，由１７种氨基酸（如谷氨酸、赖氨酸、精氨酸、酪氨酸等）组成的粗蛋白、皂甙、水、醣、微量元素，皂甙结构为：



具体含量为：

粗脂肪	粗蛋白	皂甙	水	其他
1～10	55～65	2～4	7～10	余

生产过程依下述步骤进行：

——预榨种仁饼粉；

——萃取脱脂；

——干燥，粉碎，过筛，灭菌得脱脂粉。

其中萃取脱脂可以采用下述方式：

——用弱极性有机溶剂如石油醚、苯、正已烷等于室温下或加热〈90℃情况下，萃取；

——收集萃取液，除去溶剂得脱脂粗粉。

或者采用超临界CO_2。

用文冠果种仁脱脂粉可以制成治疗遗尿症的胶囊或颗粒剂。

文冠果子和遗尿停胶囊及颗粒剂对遗尿症的疗效显著治愈率75%，好转率18%，总有效率达93%，是目前此类药物中最为理想的一种。同时，遗尿停胶囊或颗粒剂还可以治疗智力低下和痴呆症。

本发明还提供了一种提高脑功能的药物可治疗智力低下和痴呆症及遗尿症，所述药物为文冠果子的醇提取物，具体含量为：

粗脂肪	粗蛋白	皂甙	醣	水	其他
1～10	15～20	10～20	20～30	10～15	余

工艺过程如下：

——压榨后的文冠果子或文冠果脱脂粉用醇类有机溶剂如乙醇、甲醇、正丁醇等浸提；

——收集浸提液，除去溶剂，灭菌得醇提取物清膏。用所述提取物清膏可以制成冲剂或片剂。提高脑功能药物可全面提高脑神经系统功能，对小儿智力低下和中老年性痴呆等病症具有明显疗效。本发明以文冠果子为原料提取药物，经各种药理试验表明，无任何毒副作用，文冠果种仁脱脂粉制备工艺简单，皂甙收率高、造价低、果子里含有

60%的油脂，含有17种氨基酸，脱下的油脂可以作为食用油和高级油漆等。下面通过实施例详细叙述本发明。

实施例 1

采收1kg文冠果种子，清选，干燥，剥去种皮得440g种仁，预榨种仁得饼粉，用正已烷在室温下按正已烷：饼粉＝1：1浸提4到5次，每次24～48小时，收集浸提液，用减压蒸馏法除去溶剂，干燥粉碎过筛灭菌得176g脱脂粉，成份为：

粗脂肪	粗蛋白	皂甙	水	其它
5.4	61	3.3	7.5	22.8

实施例 2

将实例1所述脱脂粉76g加适量乙醇成软材，过筛制粒，加热干燥过筛整粒，装2号胶囊380粒。本胶囊即为治疗遗尿症的遗尿停胶囊。

实施例 3

用实例1所述脱脂粉100g，加400g蔗糖粉混均，制粒，干燥，灭菌，装10g袋50个，即为一种遗尿停颗粒剂。

实施例 4

采收1kg文冠果种子，按实例1所述步骤得170g脱脂粉，成份为：

粗脂肪	粗蛋白	皂甙	水	其它
6.2	59	3.5	8.2	23.1

实施例 5

用实例4所得脱脂粉，按乙醇：脱脂粉＝2：1浸提3～4次，每次16到32小时，收集浸提液，除去溶剂，灭菌消毒得乙醇提取物25.5g，成分为：

粗脂肪	粗蛋白	皂甙	醣	水	其他
8.0	15.6	19.2	23.5	14.1	19.6

实施例 6

采收与实施例 4 质量相同的文冠果种子 1 k g，清选干燥，压榨除油，得 7 5 0 g 饼，用 2 倍的甲醇浸提 3～4 次，每次 2 0～4 0 小时，收集浸提液除去溶剂，灭菌得甲醇提取物 8 0 g，成份：

粗脂肪	粗蛋白	皂甙	醣	水	其他
6.1	17.1	12.3	20.5	12.6	31.4

实施例 7

将实例 5 所得乙醇提取物清膏 1 0 g，加 0.2 g 干淀粉、0.0 6 g 5 0% 乙醇和 0.1 g 滑石粉，混匀，压片，灭菌消毒，得 2 0 0 m g 片 6 0 个片剂。可以治疗遗尿症、智力低下和痴呆症。

实施例 8

将实例 6 所得甲醇提取物清膏 1 0 g 加 3 2 g 蔗糖粉，混匀制粒干燥，灭菌，装 1 0 g 袋 4 个，可治疗遗尿症，智力低下及痴呆症。

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